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CORRESPONDENCE.

THE TRUE FUNCTION OF THE UNIVERSITY OF THE UNITED STATES.

The following contribution to the discussion opened by Dr. Dall in the February *American Naturalist*, on the subject of a university of the United States, has been received from the recording secretary of the George Washington Memorial Association. — ED.

To the Editor of the *American Naturalist* :

SIR, — With the growth of the graduate departments of existing universities of the United States, a growth which would astonish any one who had not been in the closest relation with one or many of these universities, the need which existed a few years ago for a national graduate university, with instruction leading to the Doctorate, is gradually diminishing. There is, however, left for the proposed University of the United States a unique field, one which the universities of the states cannot hope to fill — that is, the encouragement and support of research.

The fact may as well be faced that the general education of an undergraduate college course, with at the best a thesis on some special point, does not fit one to take up a subject for research and treat it broadly. The rapid progress in all branches of science makes it necessary that for a genuine advance into new fields of knowledge long and careful training in methods is necessary. The thesis for a Doctorate is in the majority of cases an expression of this careful training under the eye of a master, the subject of the thesis having been suggested by the master, and its progress watched and directed week by week ; hence with the taking of the Doctor's degree, but not before, the student is well prepared to take up an independent piece of work.

In the bill before the Senate Committee on the University of the United States is a section which should not be lost sight of or slurred over. It is : "The University shall have authority to establish with other institutions of education and learning in the United States such coöperative relations as shall be deemed advantageous to the public interest."

In a wide interpretation of this section is, it seems to me, the solution of the vexed question of the University of the United States.

The Morrill Bill of 1862, which gave the foundation of many of the state colleges — with its supplement of 1890 — and the Hatch Bill of 1887, which founded the Agricultural Experiment Stations, together form the basis for higher education and research in the states at the expense of the national government. An extension of this kind of support to the higher departments of learning in the states would disseminate the interest and give opportunity for training in research. By this means all of the degree-conferring machinery of a national university could be relegated to the universities of the states.

The selection which Dr. Dall, in the *American Naturalist* for February, mentions as necessary before students shall be admitted to opportunity in the government departments at Washington would thus be accomplished. A thesis for Doctorate would be the test for ability to use the opportunity.

By generous coöperation certain resources of the departments could be used by a special student without expecting instruction in the ordinary sense from the chief of divisions, and thus not be a burden.

The recent address of President Harper before the University Club of New York outlines a plan for a federation of universities which may make the basis for a national university. Some such plan as this, modified by the combined wisdom of a committee of experts, can surely solve the problem of the university side of the question, *i.e.*, what branches of learning can to best advantage be furthered in any one university.

The unification of the Scientific Bureaus of Washington, the exact degree in which they can give opportunity for research without impairment of their usefulness, — these questions should be discussed and carefully considered by experts also ; but the serious difficulty of opening these Bureaus to students comes from the possible great number of applicants who would be attracted by a free opportunity. There are 4000 graduate students in the universities of the United States. The number is rapidly increasing, and there may before long be 10,000 students who might apply for admission to opportunity in Washington, thus embarrassing and clogging all work. Therefore a larger outlook must be taken by those who advocate a national university. A plan must be devised whereby the government may do its share toward the support of graduate instruction in universities and also more generously support the real research done under government auspices.

The government lands are, perhaps, too nearly exhausted to make

possible a repetition of the Morrill land grant to the states; but it would be possible to issue 5% bonds which benefactors of higher education could buy for the support of graduate work in a special institution. By making these bonds inalienable a permanent fund would be established. The low ruling rate of interest would thus make the matter a genuine piece of coöperation on the part of the government, and in so far as the 5% exceeds that rate there would be a government grant.

It is, then, to emphasize the fact that the most recent thought concerning the formation of a national university does not contemplate flooding the District of Columbia with a body of untrained or partly trained students that this letter is written. It is desired that the government foster research, establishing a national university with branches, providing in the central establishment broader opportunity for research, increasing in the state branches the facilities for training graduate students.

SUSANNA PHELPS GAGE.

ITHACA, N. Y., February 9.

GASKELL'S THEORY OF THE ORIGIN OF VERTEBRATES FROM CRUSTACEAN ANCESTORS.

To the Editor of the *American Naturalist*:

SIR,—Since the Annelid theory of the origin of vertebrates, at one time so generally and enthusiastically advocated, has failed to realize the expectations of its adherents, interest in the subject has steadily fallen off, and the various attempts to substitute something in its place have gained only individual or, at most, a very small number of followers.

The impression has steadily gained ground that in spite of its very great importance the problem of the origin of vertebrates is no longer a fruitful one for discussion, because the evidence accessible is so general in character that one may make out a reasonable theory based on almost any invertebrate that one may be pleased to select. We believe, however, that there is no reasonable justification for this state of mind, and that perhaps it may be in a measure overcome by showing how any radical departure from certain lines of procedure, even if the utmost liberty is exercised in the destroying of old organs and the creation of new ones, fails to make the solu-